WHAT IS CLAMED IS:

1. A method for measuring of an electrical bio-impedance, involving applying of a periodic non sine wave excitation signal to the bio-object, and measuring the response to the excitation using synchronous demodulation, **characterized** in that both the excitation signal applied to the bio-object and a reference signal driving the synchronous detector are generated as rectangular waves, whereas durations of the constant value parts of both signals are shortened by the predetermined time intervals in each half-period of the signals, and in that said time intervals are different for the excitation and for the reference signals.

2. A method according to in claim 1, **characterized in** that the signals have zero values during the predetermined time intervals which shorten the duration of constant value parts of the signals.

3. A method as set in claims 1 and 2 , **characterized** in that the zero value intervals are equal to $\pi/6$ for one and $\pi/10$ for the other of said signals.

4. A device for measuring of an electrical bio-impedance, including an in-phase and a quadrature measurement channels (2 and 2'), a generator (3) of driving signals, and a circuit of an excitation signal 220", the output (223'') of which is connected to an input of the bio-object (1), whereas outputs 333 and 334 of the generator of driving signals (3) are connected to inputs 222 and 222' of reference circuits of the synchronous detectors (2) and (2'), **characterized** in that

the generator (3) of driving signals includes a generator of quadrature signals (300) and two formers of the bipolar rectangular signals(320, 320');

the circuit of the excitation signal contains a device for generating a shortened pulse (220''), the control input (222'') of which is connected to the output of the auxiliary signal (332) of the generator of quadrature signals (300) , the input (221'') is connected to the output (332) of the former of the bipolar rectangular signal (320), and the output (223'') is connected to the input (11) of the bio-object (1);

the reference voltage circuit of the synchronous detector (200) of the in-phase measurement channel (2) contains a device for generating of shortened pulse (220) is introduced, the control input (222) of which is connected to the output of the auxiliary signal (333) of the generator of quadrature signals (300), the input (221) is connected to the output (322) of the former of the bipolar rectangular signal (320), and the output (223) is connected to the reference input (202) of the synchronous detector (200);

the reference circuit of the synchronous detector (200') of the quadrature measurement channel (2') contains a device for generating of shortened pulse (220'), the control input (222') of which is connected to the output of the auxiliary signal (334) of the generator of quadrature signals (300) , the input (221') is connected to the output (322') of the former of the bipolar rectangular signal (320'), and the output (223') is connected to the reference input (202') of the synchronous detector (200').

5. A device according to claim 4, **characterized** in that the generator of quadrature signals (300) contains a shift register (301) of predetermined bit length and the quadrature triggers (302, 303).

6. A device according to in claim 4, **characterized** in that the synchronous detectors (200, 200') are implemented on the basis of analog multiplier (204).

7. A device according to claim 4, **characterized** in that the synchronous detectors (200, 200') are implemented on the basis of switching multiplier (205).

8. A device according to claim 7, **characterized** in that the switching multiplier (205) in the synchronous detectors (200, 200') is implemented on the basis of mixed signal analogue /digital techniques.

9. A device according to claim 7, **characterized** in that the switching multiplier (205) in the synchronous detectors (200, 200') is implemented on the basis of digital techniques.